

288

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N

ENC

TPY

13.14

NS-11?

mine water

NS-

BC-1 599,152.80
BC-2 599,152.8
Mono-11 599,323.4
MW-3 599,058
RA-29 598,812.37
Mono-12 599,330.6

4,608,434.8
4,608,483.9
4,607,941.3
4,608,059
4,608,511
4,608,374.0

KLM

Gen Chs

u
1
N

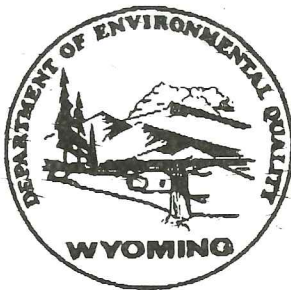
Q

FD-617 603,741.7
GR-3-Q 603,476.3

4,605,237.4
4,605,127.36

MW-3

Hs 130'
Ts 150°F
Ds 6.5'
Qs 120,052 ACFM



Post-it® Fax Note

7671

Date

of pages

2

To

Brewster

From

Tim Brown

Co./Dept.

Co.

SMI

Phone #

Phone #

Fax #

303-607-9034

Fax #

FAX TRANSMITTAL COVER SHEET

No. of Pages: 2 (Cover Sheet Included)

DATE: 10/31/97

TO: DOLLY POTTER

PHONE NO.: (307) 872-6571

FAX NO.: (307) 872-5876

FROM: K. RAIRIGH

PHONE NO.: (307) 777-6188

COMMENTS: DOLLY,

ALL UNITS ARE ENGLISH UNITS, BUT NEED TO BE

CONVERTED TO SI (METRIC) UNITS. CALL IF YOU NEED

ANYTHING.

IF YOU DID NOT RECEIVE ALL OF THE PAGES, PLEASE NOTIFY THE SENDER AS
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OFFICE NO. (307) 777-7391

FAX NO. (307) 777-5616

1/1

10/31/97

DOLLY,

HERE ARE THE STACK PARAMETERS YOU REQUESTED.

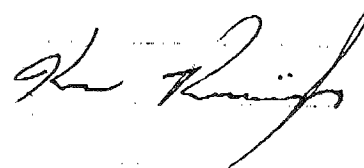
 H_s = STACK HEIGHT (ft) Q_s = STACK AIR FLOWRATE (ACFM) T_s = STACK TEMP ($^{\circ}F$) D_s = STACK DIAMETER (ft)

FMC	H_s	T_s	D_s	Q_s
BC-1	93	171	2.5	18,000
BC-2	91	103	2.5	10,000
RA-29	80	180	4.0	73,000
MONO-11	25	64	2.5	20,000
MONO-12	60	69	3.0	24,000

GEN-CHEM	H_s	T_s	D_s	Q_s
FD-617	4	55	0.66	1,800
GR-3-Q	118	155	3.0	18,700

$$\textcircled{1} \quad \bar{V}_s = \frac{Q_s}{A_s}, \quad \textcircled{2} \quad A_s = \frac{\pi D_s^2}{4}$$

VELOCITY WILL HAVE TO BE CALCULATED BASED ON
THE 2 EQUATIONS ABOVE.



MEMORANDUM

To: Trona Plant Files

Through: Chuck Collins, Air Quality Administrator
Bernie Dailey, Air Quality Supervisor

From: Lee Gribovicz, District Air Quality Engineer

Subject: Particulate PSD Increment Consuming Sources

Date: December 31, 1996

My memo of December 4, 1996 (w/ December 16, 1996 OCI Correction) compiled the particulate PSD status of the five current trona plants (FMC, Gen-Chem, OCI, Solvay, Texasgulf). This memo provides an itemized list of the point sources at each of those plants with emissions that consume the particulate increment.

It should be noted that when multiple sources are constructed under a permit, and a "contemporaneous emission decrease" is taken, it is purely arbitrary which new sources receive the emission offset, and which sources carry the PSD increment consumption. In this analysis, the only incident of this kind occurred in FMC's CT-1045 permit, where the existing RA-24 calciner was retrofitted with a new scrubber and accepted a 35.0 pph allowable particulate emission reduction. Sources MW-1, MW-2, MW-3 & MW-4 were constructed, and subsequently had their allowable emission rates adjusted as different sized equipment was ultimately installed from that considered in the original application. The RA-24 reduction was enough to offset all but 0.27 pph (1.19 TPY) of the new source allowable emissions. I have assigned that 1.19 TPY to MW-3, the new product dryer at the mine water plant, and the largest of the emission sources permitted under CT-1045.

In other cases "contemporaneous emission decreases" reduce the PSD emission consumption below the allowable of the source involved, so that the allowable and the PSD emission consumption totals are not the same.

It should also be noted that all emissions at Solvay consume increment because the plant was constructed after the 1977 effective date of the PSD regulations. Therefore, I have not constructed a Solvay point source table, but one can use the latest permit emission list from MD-282, the metabisulfite project.

Following on page 2 of this memo are the tables of the emission sources which consume particulate PSD increment at the other four current trona plants (FMC, Gen-Chem, OCI, & Texasgulf).

Over, continued on next page ...

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10/30/97

Trona Plants Memorandum
 Particulate PSD Increment Consuming Sources
 December 31, 1996
 Page 2

FMC Particulate PSD Increment Consuming Emission Sources				
Source ID	Allowable (pph)	Allowable (TPY)	PSD (TPY)	Permit
BC-1	3.00	13.14	13.14	CT-827/OP-234
BC-2	1.70	7.45	7.45	CT-827/OP-234
Mono-11	3.00	13.14	13.14	MD-120/OP-237
MW-3	9.89	43.32	1.19	CT-1045
RA-29	3.45	15.11	1.55	CT-1134
Mono-12	2.73	11.96	7.54	CT-1187
Totals	RA-33 3.00	104.12	44.01	NSR-047

General Chemical Particulate PSD Increment Consuming Emission Sources				
Source ID	Allowable (pph)	Allowable (TPY)	PSD (TPY)	Permit
FD-617	0.23	1.01	1.01	9/12/90 Waiver
GR-3-Q	1.50	6.57	6.57	MD-129A
Totals		7.58	7.58	

OCI Particulate PSD Increment Consuming Emission Sources				
Source ID	Allowable (pph)	Allowable (TPY)	PSD (TPY)	Permit
DC-100	1.19	5.21	5.21	MD-133
Totals		5.21	5.21	

CT 1299 5/27/97

Texasgulf Particulate PSD Increment Consuming Emission Sources				
Source ID	Allowable (pph)	Allowable (TPY)	PSD (TPY)	Permit
24	1.00	4.38	4.38	CT-508A/OP-165
C-3	0.67	2.94	2.94	CT-945
C-4	0.43	1.88	1.88	CT-945
Totals		9.20	9.20	

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MEMORANDUM

To: Trona Plant Files

Through: Chuck Collins, Air Quality Administrator
Bernie Dailey, Air Quality Supervisor

From: Lee Gribovicz, District Air Quality Engineer

Subject: Particulate PSD Status

Date: December 4, 1996 (w/ December 16, 1996 OCI Correction)

I have compiled the particulate PSD status of the five current trona plants (FMC, Gen-Chem, OCI, Solvay, Texasgulf) in this memo. The status is discussed for each of the facilities as of this date, in the following sections.

FMC

As of this writing, the latest FMC PSD particulate permit is CT-1187, issued for construction of the Mono-12 Loadout Baghouse in November '96. After the 1977 effective date of the PSD regulations, FMC also received permit CT-827 for a sodium bicarbonate plant in March '89; MD-120 for a mono dual ore crusher system in March '90, CT-1045 for their mine water plant in September '93, and CT-1134 for a new sesqui fluid bed dryer in March '95.

Under CT-827 FMC added 20.59 TPY of particulate to the Green River plant, and they added another 13.14 TPY emissions to the plant under MD-120. The net PSD increase under the original CT-1045 permit was 12.93 TPY, but the size of three emission points (MW-1, 2 & 4) was subsequently adjusted, resulting in a total reduction of 2.68 pph particulate allowable emission rate (11.74 TPY). Thus the actual PSD increment consumption under CT-1045 was only 1.19 TPY. The net increase under CT-1134 was 1.55 TPY, and the CT-1187 particulate increase was 7.54 TPY. Thus as shown in Table A, the net PSD increase for FMC additions to the plant from all applicable permits now totals to 44.01 TPY of particulate. These emission additions are the only modifications undertaken by FMC since the effective date of the PSD regulations (8/7/77) which haven't been accompanied by a totally offsetting "contemporaneous decrease" in emissions. Therefore, these emissions represent the total PSD particulate increment consumption at the FMC plant to date.

General Chemical

As of this writing, the latest General Chemical permit dealing with particulate is MD-129A, issued for debottlenecking their Green River plant in January '96. The original MD-129 permit considered a new dryer, identified as IE-1, but that source was never built. The revised permit allowed construction of the GR-3-Q dryer (completed), with an allowable emission rate of 1.5 pph (6.57 TPY). After the 1977 effective date of the PSD regulations, General Chemical also received modification permit MD-121 for a replacement crusher at GR-3-A in March '90; a waiver for FD-617 bulk truck loadout baghouse in September '90, permit MD-198 for revision of the GR-1-B(1) product loadout system in May '94, a waiver for the reconstruction of CH-1 coal

handling baghouse in October '95, and a waiver for the crusher replacement and reconstruction of baghouses GR-1-A, GR-3-A and A-305 in the crusher building in December '95.

Under MD-121/OP-227 General Chemical simply replaced the GR-III crusher, while the existing GR-3-A baghouse had its allowable reduced from 3.0 to 2.5 pph. Thus the source was an existing emission point prior to the effective date for PSD applicability and the emissions do not consume increment. The September '90 bulk truck loadout waiver for the FD-617 baghouse added 0.23 pph, or 1.01 TPY, even though there was an unquantified reduction in fugitive emissions from this project. Under MD-198 the rail loadout was modified and GR-1-B(1) baghouse reconstructed, but the baghouse had its allowable reduced from 2.28 to 1.39 pph under this action. As above, this source was an existing emission point prior to the effective date for PSD applicability and the emissions do not consume increment. No emission changes were associated with the waivers for the CH-1 or the crusher baghouses reconstruction. And as noted above, under MD-129/MD-129A, there was a 6.57 TPY particulate increase with the installation of GR-3-Q. Thus as shown in Table B, the net PSD increase for General Chemical additions to the plant from all applicable permits now totals to 7.58 TPY of particulate. These emission additions are the only modifications undertaken by General Chemical since the effective date of the PSD regulations (8/7/77), therefore these emissions represent the total PSD particulate increment consumption at the General Chemical plant to date.

OCI

As of this writing, the latest particulate OCI PSD permit is MD-271, issued for adjusting the instantaneous maximum throughput rate of 5ES-10 calciner, in May '96. After the 1977 effective date of the PSD regulations, OCI also has received permit CT-251 (OP-98) for surface facilities associated with a second plant mine shaft in September '79; permit MD-96 (OP-225) for a new Unit 5 crusher system in January '89, and permit MD-133 (OP-256) for debottlenecking modifications in December '90.

Under CT-251 OCI constructed three point sources (DC-36, 37 and 38) which added 16.34 TPY of particulate (original DC-36 allowable reduced under MD-133 from 1.0 to 0.73 pph) to the Big Island plant. These sources did not consume increment however, because the analysis showed emissions were offset beyond 16.34 TPY by reducing the stockpile size from 200,000 to 100,000 tons. The 2.80 TPY added with construction of the DC-19 baghouse under MD-96 (original DC-19 allowable reduced under MD-133 from 0.7 to 0.64 pph), was offset by an approximate equal reduction from control of former fugitive emissions at that site. The net increase under the MD-133 permit was 5.21 TPY from DC-100 (original allowable of 3.12 pph was subsequently adjusted down to 1.19 pph in OP-256 to reflect the reduced volume of the final system design). There were no particulate emission changes included in MD-271, therefore as shown in Table C, the net PSD increase for OCI additions to the plant from all applicable permits now totals to 5.21 TPY of particulate. These emission additions are the only modifications undertaken by OCI since the effective

date of the PSD regulations (8/7/77) which haven't been accompanied by a totally offsetting "contemporaneous decrease" in emissions. Therefore, these emissions represent the total PSD particulate increment consumption at the OCI plant to date.

Solvay

Because this plant was not constructed until 1982, after the 1977 effective date of the PSD regulations, all of the emissions from the facility consume PSD increment. As of this writing, permits that Solvay has received include CT-234/234A/234A2 (OP-154) issued for the initial one million TPY soda ash plant, CT-643/643A (OP-181) issued for construction of the Alkaten production facility, CT-946 issued for a calcined trona project (project was mostly abandoned), MD-117 issued for a caustic/sodium sulfite production facility and a new fluid bed soda ash drier, MD-132 issued for the construction of the third "C" soda ash product line, and MD-229 issued for conversion of the "A" & "B" trona calciners to gas firing. The latest particulate permit Solvay has is MD-282, issued for construction of a meta-bisulfite production facility, in May '96.

The MD-282 permit analysis provides an updated analysis of the PSD particulate status for the Solvay Green River plant. That permit shows 481.51 TPY of particulate emissions permitted from the plant, therefore these emissions represent the total PSD particulate increment consumption at the Solvay plant to date. As shown in Table D, the plant currently has 0.98 TPY of particulate that has not yet been modeled for increment consumption since the last analysis which was conducted for CT-946. When Solvay next completes a "major modification" such that the cumulative total of 15 TPY PM_{10} (or 25 TPY TSP) is exceeded, they will be required to remodel their entire plant particulate emissions for determining compliance with PSD increments.

Texasgulf

As of this writing, the latest particulate Texasgulf permit is MD-230, issued for adjusting the instantaneous maximum throughput rate of the two plant calciners, in June '95. After the 1977 effective date of the PSD regulations, Texasgulf also has received permit CT-508/508A (OP-165) for construction of a fluid bed dryer in August '83; permit MD-69 (OP-222) for debottlenecking modifications in May '87; CT-945 (OP-255) for construction of a caustic soda production facility in September '91; and permit MD-177 issued for conversion of their two trona calciners to gas firing in September '92.

Under CT-508/508A Texasgulf constructed source #24, a fluid bed dryer, which added 4.38 TPY of particulate when it had its allowable raised to 1.00 pph under the CT-508A amendment. Under MD-69, Texasgulf raised the plant capacity to 1.3 MM TPY with debottlenecking activities, but they retained existing allowable emission limits for all existing sources. The original proposal included additional emission points for a cooler and a bulk truck loadout, but Texasgulf subsequently decided that neither of these new point sources were

necessary. Consequently MD-69 had no additional emissions associated with it. The net particulate increase under the CT-945 permit was originally higher (5.30 TPY), but dropped to 4.82 TPY in the operating permit as Texasgulf eliminated plans for a carbon regenerator incinerator (0.11 pph) in the final system design. There were no particulate emission changes included in permits MD-177 or MD-230, as Texasgulf retained the existing allowable emission limits for both the calciner gas conversion and the instantaneous throughput increase for these kilns. Therefore as shown in Table E, the net PSD increase for Texasgulf additions to the plant from all applicable permits now totals to 9.20 TPY of particulate. These emission additions are the only modifications undertaken by Texasgulf since the effective date of the PSD regulations (8/7/77) which haven't been accompanied by a totally offsetting "contemporaneous decrease" in emissions. Therefore, these emissions represent the total PSD particulate increment consumption at the Texasgulf plant to date.

Table A: FMC PSD Net Emissions Changes (Particulate TPY)

Source	Average Actual Emissions		Permitted Emission		Net Change	
	2 Year Avg	Record Year	Existing	Modified	Permitted	Actual
Contemporaneous Decreases						
RA-24 A&B (CT-1045)	90.96	'90-91	197.10	43.80	-153.30	-47.16
RA-14 (CT-1134)	0.34	'92-93	17.52	0.00	-17.52	-0.34
PP-25 (CT-1134)	28.24	'92-93	65.70	15.02	-50.68	-13.22
Mono-7 (CT-1187)	4.85	'93-94	8.76	0.00	-8.76	-4.85
Mono-9 (CT-1187)	6.18	'93-94	8.76	6.61	-2.15	0.43
Total Decreases	130.57	n.a.	297.84	65.43	-232.41	-65.14
PSD Increases						
CT-827 Additions	n.a.	n.a.	20.59	20.59	0.00	20.59
MD-120 Additions	n.a.	n.a.	13.14	13.14	0.00	13.14
CT-1045 Additions	n.a.	n.a.	n.a.	60.09	60.09	60.09
CT-1045 Adjustments	n.a.	n.a.	n.a.	-11.74	-11.74	-11.74
CT-1134 Additions	n.a.	n.a.	n.a.	15.11	15.11	15.11
CT-1187 Additions	n.a.	n.a.	n.a.	11.96	11.96	11.96
Total Increases	0.00	n.a.	33.73	109.15	75.42	109.15
Subtotal, Increment Consuming Emissions					-156.99	44.01
Emissions Considered in Previous Increment Analyses (MD-120 Permit)						33.73
Current Net Emissions Change (since last PSD Analysis)						10.28

Table B: General Chemical PSD Net Emissions Changes (Particulate TPY)

Source	Average Actual Emissions		Permitted Emission		Net Change	
	2 Year Avg	Record Year	Existing	Modified	Permitted	Actual
Contemporaneous Decreases						
None Documented	0.00	n.a.	0.00	0.00	0.00	0.00
Total Decreases	0.00	n.a.	0.00	0.00	0.00	0.00
PSD Increases						
9/90 Waiver (FD-617)	n.a.	n.a.	0.00	1.01	1.01	1.01
MD-129A (GR-3-Q)	n.a.	n.a.	0.00	6.57	6.57	6.57
Total Increases	0.00	n.a.	0.00	7.58	7.58	7.58
Subtotal, Increment Consuming Emissions					7.58	7.58
Emissions Considered in Previous Increment Analyses (None Completed)						0.00
Current Net Emissions Change (since last PSD Analysis)						7.58

Table C: OCI PSD Net Emissions Changes (Particulate TPY)

Source	Average Actual Emissions		Permitted Emission		Net Change	
	2 Year Avg	Record Year	Existing	Modified	Permitted	Actual
Contemporaneous Decreases						
Stockpile (CT-251)	194.80*	'77-78	194.80*	178.46*	-16.34	-16.34
Fugitive (MD-96)	2.80	'87-88	2.80	0.00	-2.80	-2.80
Total Decreases	197.60	n.a.	197.60	178.46	-19.14	-19.14
PSD Increases						
251 (DC-36,37,38)	n.a.	n.a.	0.00	16.34	16.34	16.34
MD-96 (DC-19)	n.a.	n.a.	0.00	2.80	2.80	2.80
MD-133 (DC-100)	n.a.	n.a.	0.00	5.21	5.21	5.21
Total Increases	0.00	n.a.	0.00	24.35	24.35	24.35
Subtotal, Increment Consuming Emissions					5.21	5.21
Emissions Considered in Previous Increment Analyses (MD-120 Permit)						0.00
Current Net Emissions Change (since last PSD Analysis)						5.21

* numbers revised February 13, 1997 (LG) *

- ✓ 194.80 TPY from p76 of the December '78 Non-Attainment Plan for 200,000 ton stockpile
- ✓ 178.46 TPY value for 100,000 ton pile force fit to balance eventual DC-36,37,38 increases
- ✓ actual emissions totals used in the MD-133 analysis (Table B) for 100,000 ton pile were 36.21 pph (158.6 TPY), therefore more reduction was achieved by 200→100,000 ton stockpile size reduction than could be used under PSD

Table D: Solvay PSD Net Emissions Changes (Particulate TPY)

Source	Average Actual Emissions		Permitted Emission		Net Change	
	2 Year Avg	Record Year	Existing	Modified	Permitted	Actual
Contemporaneous Decreases						
AQD #12,23&29 (MD-282)	2.05	'93-94	7.01	0.00	-7.01	-2.01
AQD #17 (MD-282)	114.54	'93-94	134.47	97.67	-36.80	-16.87
Total Decreases	116.59	n.a.	141.48	97.67	-43.81	-18.92
PSD Increases						
MD-282	n.a.	n.a.	0.00	19.90	19.90	19.90
Total Increases	0.00	n.a.	0.00	19.90	19.90	19.90
Current Net Emissions Change (since last PSD Analysis) {CT-946 Permit}					-23.91	0.98

Table E: Texasgulf PSD Net Emissions Changes (Particulate TPY)

Source	Average Actual Emissions		Permitted Emission		Net Change	
	2 Year Avg	Record Year	Existing	Modified	Permitted	Actual
Contemporaneous Decreases						
None Documented	0.00	n.a.	0.00	0.00	0.00	0.00
Total Decreases	0.00	n.a.	0.00	0.00	0.00	0.00
PSD Increases						
CT-508/508A	n.a.	n.a.	0.00	4.38	4.38	4.38
CT-945	n.a.	n.a.	0.00	4.82	4.82	4.82
Total Increases	0.00	n.a.	0.00	9.20	9.20	9.20
Subtotal, Increment Consuming Emissions					9.20	9.20
Emissions Considered in Previous Increment Analyses (None Completed)						0.00
Current Net Emissions Change (since last PSD Analysis)						9.20